In Command and Out of Control: Leaders Developing Teams that Thrive in Chaos and Ambiguity

A Monograph

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2016

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION.

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
29-06-2016	SAMS Monograph	JUN 2015 – MAY 2016

4. TITLE AND SUBTITLE
In Command and Out of Control: Leaders Developing Teams that Thrive in Chaos and Ambiguity

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
LTC James J. Smith

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
School of Advanced Military Studies, Advanced Military Studies Program

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The character of armed conflict continues to change at an alarming rate due to extremist ideologies, reassertion of global hegemons, climate change, cyber conflict, infectious disease, and technological advances. This provides compelling justification that traditional leadership models used to prepare military organizations to succeed in armed conflict are becoming less useful. Given the hierarchical structure of military organizations and the complex environment described above leaders must now be able to generate teams that can thrive in the chaos and ambiguity associated with war. Teams must provide the innovative and creative solutions formerly left to the individual leader. This monograph explores how the theory of complexity leadership offers a compromise that bridges the gap between the stability commonly associated with the traditional top-down, centralized military structure, and the principles of self-organization, decentralization, and bottom-up refinement associated with complex adaptive systems. Two historical illustrations provide an analysis of leadership through the lens of complexity leadership theory. This research concludes with an analysis of current Army leadership doctrine, identify gaps and propose how complexity leadership theory could fill these gaps.

15. SUBJECT TERMS
Complexity leadership theory, complexity theory, complicated, complex environments, emergence, self-organization, administrative leadership, enabling leadership, adaptive leadership, intuition, participative leadership, social competence, heterogeneity, self-organization, and organizational learning, Army leader doctrine.

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			LTC James J. Smith
(U)	(U)	(U)	(U)	58	19b. TELEPHONE NUMBER *(Include area code)* 913-777-1103

Reset

Monograph Approval Page

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other government agency.(References to this study should include the foregoing statement.)

Abstract

In Command and Out of Control: Leaders Developing Teams that Thrive in Chaos and Ambiguity, by LTC James J Smith, USA, 58 pages.

The character of armed conflict continues to change at an alarming rate due to extremist ideologies, reassertion of global hegemons, climate change, cyber conflict, infectious disease, and the ubiquity of technological advances. This type of environment provides compelling justification that traditional leadership models used to prepare military organizations to succeed in armed conflict are becoming less useful. The leader can no longer be the sole problem solver when faced with an unpredictable, complex environment. Given the hierarchical structure of military organizations and the complex environment described above leaders must now be able to generate teams that can thrive in the chaos and ambiguity associated with present and future war. Now, teams must provide the innovative and creative solutions formerly left to the individual leader if we expect Army teams to *thrive* in uncertainty and danger. This monograph explores how the theory of complexity leadership offers a compromise that bridges the gap between the stability commonly associated with the traditional top-down, centralized military structure, and the principles of self-organization, decentralization, and bottom-up refinement associated with complex adaptive systems. Two historical illustrations provide an analysis of leadership through the lens of complexity leadership theory. This research concludes with an analysis of current Army leadership doctrine, identify gaps and propose how complexity leadership theory could fill these gaps when operating in a complex environment.

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Acknowledgments

The Army is a team sport. I have yet to accomplish anything in a vacuum. Little would be achieved in my military tenure without the enduring support of my wife, Marie, and my two children, MJ and McKenna. I am so grateful to have them in my life and be apart of this journey with me. The Army is a place that encourages mentorship. LTG Robert B. Brown is the quintessential epitome of a mentor. His guidance and leadership style provided the foundation for this research. I would also like to thank Dr. Jeff Kubiak and COL Kevin Romano for their mentorship, expert counsel, and friendship throughout the development of this project. Next, I would like to recognize COL Tim Sullivan. He was a beacon of military clarity. His example of selfless service is what has inspired me to focus my research on leadership. I would also like to thank LTC(P) Jay Miseli for providing his counsel and guidance during his tenure as a squadron commander. LTG Brown, COL Sullivan, Romano and LTC(P) Miseli embody the principles of complexity leadership theory. Lastly, I would like to thank the Soldiers with whom I have served. This research is dedicated to their service and sacrifice.

Acronyms

CARL	Combined Arms Research Library
AOBC	Armor Officer Basic Course
AOC	Army Operating Concept
BLUEFOR	Blue Force
CAS	Complex Adaptive System
CPS	Complex Physical System
DATE	Decisive Action Training Environment
ISIS	Islamic State in Iraq
LTC	Lieutenant Colonel
LTG(R)	Lieutenant General, Retired
MBT	Main Battle Tank
NTC	National Training Center
ODA	Operational Detachment Alpha
R&S	Reconnaissance and Security
SEP	System Enhancement Program
TRADOC	Training and Doctrine Command
US	United States

Has Armed Conflict Changed the Paradigm of Military Leadership?

In August 2002, the Department of Defense requested a former Marine Corps officer, Lieutenant General retired (LTG(R)) Paul Van Riper to serve as the enemy commander for a classified military simulation exercise known as Millennium Challenge. At a cost of over $250 million dollars, over two years of preparation, and two-and-a-half week execution, The Joint Force Command Headquarters (JFCOM) sought to validate some intellectual ideas combined with technological gadgets designed to remove, or at least reduce, fog and friction inherently associated with combat.[1] The enemy, also known as the Red Team, simply needed to fall in line and wait while the friendly forces, known as the Blue Force (BLUEFOR), destroyed their resources and forced their surrender.

LTG(R) Van Riper had other ideas. Realizing the overmatch that BLUEFOR presented, LTG(R) Van Riper worked with Red Team to find solutions to BLUEFOR's overwhelming numerical force and cutting-edge technology. At the start of the exercise, the BLUEFOR deployed approximately 13,000 military personnel into the area of operations intended to overwhelm this small, rogue Middle Eastern state known to support terrorism.[2] BLUEFOR then gave LTG(R) Van Riper's Red team an eight-point ultimatum to surrender in twenty-four hours. LTG(R) Van Riper's Red Team realized they had to solve a complex problem or BLUEFOR would conduct a preemptive strike resulting in the Red Team's destruction.[3]

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[1] Malcolm Gladwell, *Blink: The Power of Thinking without Thinking* (New York: Little, Brown and Co., 2005), 106.

[2] Malcolm Gladwell, *Blink: The Power of Thinking without Thinking* (New York: Little, Brown and Co., 2005), 106; Andrew F. Krepinevich, *7 Deadly Scenarios: A Military Futurist Explores War in the 21st Century* (New York: Bantam Dell, 2009), 5.

[3] Gladwell, *Blink: The Power of Thinking without Thinking*, 110.

Fortunately, for the Red Team, LTG(R) Van Riper brought a set of skills well suited for this type challenge. He recognized that his team did not have time to wait for him to devise a plan in response to BLUEFOR's ultimatum. Van Riper realized that his team needed to "put their minds to the problem and think through: how can (they) adapt and avoid (this) overwhelming force and yet do damage against" the BLUEFOR?[4] Van Riper's team realized they needed to accomplish three goals to inhibit the Blue Team's technological and numerical advantages: attack first, eliminate their technological footprint, and swarm the larger BLUEFOR navy with a multitude of smaller enemy vessels.[5]

Red Team's results were impressive. Within twenty-four hours, Red Team destroyed sixteen Blue Team navy ships and caused an estimated twenty thousand military casualties. The adjudicators for Joint Forces Command (JFLCC) paused the exercise to reconstitute but Red Team did not stop there. They continued to harass BLUEFOR during the exercise. Red Team forces were so effective that the JFCOM umpires had to apply artificial constraints on the Red Team to allow BLUEFOR to survive through to the end of the exercise. Free-play was eliminated and the force scripting allowed the BLUEFOR to ultimately defeat the Red Team forces and claim successful employment of the latest resources better known as the Operational Net Assessment and Effects-Based Operations.[6]

Pundits, analysts, and experts have argued the outcome this particular exercise over the last thirteen years. Much of the debate has focused on the legitimacy of the tactics employed by the Red Team. Few, however, have examined how LTG(R) Van Riper successfully assembled a

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[4] Scott Willis, "The Immutable Nature of War: Interview with Paul Van Riper," NOVA, accessed September 01, 2015, http://www.pbs.org/wgbh/nova/military/immutable-nature-war.html.

[5] Thom Shanker, "Iran Encounter Grimly Echoes '02 War Game," *The New York Times*, 2008; Gladwell, *Blink: The Power of Thinking without Thinking*, 110; Krepinevich, *7 Deadly Scenarios: A Military Futurist Explores War in the 21st Century*, 5-7.

[6] Gladwell, *Blink: The Power of Thinking without Thinking*, 105.

heterogeneous team that outmatched the most powerful military in the world armed with the most advanced technology and competent military minds. If one carefully examined LTG(R) Paul Van Riper's comments over the last thirteen years, they could find that success did not lie in his individual intellectual, tactical, or technical competence. He has maintained two consistent themes. First, as the commander of the Red Team, he was still required to guide his team. LTG(R) Van Riper simply that "he would be in command and out of control."[7] Van Riper recognized that his team would fail if he centralized authority at his level. Based on his military experience that included combat tours in Vietnam, he needed to generate a culture in Red Team that could thrive in complex and ambiguous situations. Although atypical to the traditional culture of military structure, the organization needed to respond as a collective group. Van Riper's team successfully preempted BLUEFOR's Preemptive Strike strategy by creating an organizational climate that led to a more effective response similar to Charles Boyd's OODA (Observe, Orient, Decide, Act) Loop, but for an organization instead of an individual.[8] Next, Red Team recognized BLUEFOR's inability to self-organize as a team due to an overemphasis on data analysis. LTG(R) Van Riper realized that Blue Team was "so focused on the mechanics and the process that they never looked at the problem holistically. In the act of tearing something apart, you lose its meaning."[9] Van Riper's Red Team successfully isolated key BLUEFOR units resulting in their eventual destruction.

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[7] Gladwell, *Blink: The Power of Thinking without Thinking*, 105; Didier Marlier, "To be in Command and Out of Control: Interview with Retired Lieutenant General Paul Van Riper," Enablers Network: From Disruption to Engagement, accessed September 1, 2015, http://enablersnetwork.com/2010/"to-be-in-command-and-out-of-control"/.

[8] Frans P. B. Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*, Vol. 18 (London; New York: Routledge, 2007).

[9] Gladwell, *Blink: The Power of Thinking without Thinking*, 125.

The example of LTG(R) Paul Van Riper highlights a larger military problem. All too often analysis of a major exercise examines the tactics, techniques, and procedures to improve a military unit's performance in question. For example, the United States Army established four combat training centers: The Mission Command Training Program (MCTP), The National Training Center (NTC), the Joint Readiness Training Center, and the Joint Multinational Training Center (JMTC). Their mission statements all lead to the same conclusion: to train soldiers, leaders, and the unit for combat.[10] For example, the vision of the National Training Center is to "develop Leaders at echelon who can prevail in conditions of ambiguity…Leaders that think fast, make sound decisions, exercise disciplined initiative, and give commands. We help leaders learn HOW to think, not WHAT to think."[11] Although a critical component of educating leaders to think critically and creatively, it does not address how the organization is capable of thriving in a complex environment. This suggests that the Army places most emphasis on individual development as opposed to organizational development.

In October 2014, Training and Doctrine Command (TRADOC) published the *Army Operating Concept (AOC)* and the US Army *Human Dimension Strategy* in April 2015. The subtitle of the *AOC* explains that the Army has one simple objective: "Win in a Complex

[10] The United States Army, "The Mission Command Training Program," United States Army Combined Arms Center, accessed September 07, 2015, http://usacac.army.mil/ organizations/cact/mctp; The United States Army, "JRTC and Fort Polk," The Joint Readiness Training Center, accessed September 07, 2015, http://www.jrtc-polk.army.mil/MissionStmt. html; The United States Army, "The Joint Multinational Readiness Center: The Official Homepage USAREUR's Combat Training Center," The Joint Multinational Readiness Center, accessed September 07, 2015, http://www.eur.army.mil/jmrc/mission.html; The United States Army, "The National Training Center, Fort Irwin," The National Training Center, Fort Irwin, CA, accessed September 07, 2015, http://www.irwin.army.mil/Pages/Units/NTC/NTC.html.

[11] Ibid.

World."[12] The US Army *Human Dimension Strategy* states, "The Army is capable of developing trusted professionals that improve and thrive in the ambiguity and chaos of 2025. Investing in the human dimension acts as a hedge against uncertainty and ensures the Army maintains overmatch and can exploit a decisive edge."[13] These strategic concepts highlight a possible paradigmatic shift in warfare that requires teams to prepare for a threat that is constantly changing, unknown and possibly unknowable. No longer are Army organizations able to wait for the cognitive, physical, and social optimization of leaders to "achieve and advantage over a situation or adversary."[14] Given the hierarchical structure of military organizations and the complex environment described in both the *Army Operating Concept* and the *Human Dimension Strategy*, leaders must now be able to generate teams that can thrive in the chaos and ambiguity associated with present and future war. Now, teams must provide the innovative and creative solutions formerly left to the individual leader if we expect Army teams to *thrive* in uncertainty and danger. This monograph attempts to describe how leaders, like LTG(R) Paul Van Riper, build teams to thrive in complex and ambiguous scenarios like those faced by Van Riper's Red Team during Millennium Challenge 2002.

The leader is no longer the sole proprietor of problem solving when faced with a complex environment. The leader's primary role is to generate teams that can thrive in chaos and ambiguity, requiring leaders to lead teams that embrace values central to learning organizations. This research is significant for two reasons: *The Army Operating Concept* and the *Army Human Dimension Strategy* posit that chaos and complexity in future warfare will drastically increase. Military culture emphasizes the leader as the critical independent variable for the entire

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[12] David Perkins, Presentation to the Advanced Military Studies Class, 16-01 on The Army Operating Concept, Fort Leavenworth, KS, July 17, 2015.

[13] The United States Army Combined Arms Center, *The Army Human Dimension Strategy* (Fort Leavenworth, KS, 2015), 1.

[14] Ibid., 8.

organization's success or failure. Additionally, hierarchical organizations like the US Army generate perceived risk from a higher-level headquarters. It can cause leaders to channel their attention and micromanage their team, and can ultimately prevent their team from achieving a successful outcome in a complex environment. The greater degree of complexity faced by military organizations in both present and future battlefield demands a reexamination of how military organizations are developed and led.

Since the military is a hierarchical organization, the leader is responsible for generating teams that are intellectually, physically, and emotionally capable of overcoming a situation or adversary. Therefore, specific leader attributes and cultural values are necessary for the development of organizational success in complex environments. Complex environments demand a training strategy that focuses on how a leader can develop organizations, not just individuals that thrive in chaos and ambiguity. The leader and the organization should possess specific attributes if they intend to optimize the cognitive, physical, and social performance of the entire team. Complexity leadership theory provides the military with a new organizational paradigm necessary for success in the future as described in the *Army Operating Concept* and *Human Dimension Strategy*.

This research aims to examine how military leaders can best develop teams to thrive in complexity, and what organizational and leader attributes support the military leader to best achieve this outcome. The examination of how leaders develop teams to thrive in chaos and ambiguity begins with initial background research followed by a literature review of the *Army Operating Concept* and the US Army *Human Dimension Strategy*. An analysis of complexity theory and complexity leadership theory will establish a foundation for understanding the characteristics necessary for an organization that can thrive in uncertainty. Understanding the foundation of complexity leadership theory will allow for a greater understanding of its applicability to military organizations. From this, a list of recommended leader and organizational

attributes are drawn. Complexity leadership theory along with these attributes will then be used to examine a pair of leaders who successfully generated teams to thrive in chaos and ambiguity. Finally, the research will compare this list of attributes with the leadership values described in the US Army doctrine to determine if they are congruent.

A plethora of research exists regarding the unpredictable challenges and threats the United States Army will face in the future. There are two primary schools of thought how to address these future threats. The first school argues that technology is both necessary and sufficient to defeat future military threats. One needs to look no further than the daily publication of the Military Times *Early Bird*. An entire section titled, 'Defense Industry' examines how technology will influence current and future military initiatives.[15] For example, during a four month period, the *Early Bird's* Defense Industry section published an average of twelve articles a day pertaining to how technology will defeat future threats.[16] The defense industry's school of thought suggests that rapid technological advancements will interrupt an enemy's decision-making cycle or compel an adversary to change their behavior through a technical solution. Although technology is crucial to battlefield success, rivals have rapidly adapted to these advantages over the last ten years of conflict.

Another small but growing school of thought examines how the human dimension, not technology will influence the United States Army's ability to win in a complex world. Carl Von Clausewitz's theory of war serves as the primary foundation for much of this viewpoint. This

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[15] Oriana Pawlyk, "Early Bird Brief," Military Times, accessed September 23, 2015, http://view.exacttarget.com/?j=fe57117771670275731 5&m=ff011577756600&ls=fdc715707c66047e7c17797665&l=fe8b13707d6c007d7c&s=fdff15777762077d74107677&jb=ffcf14&ju=fe2e117071610c7a771472&r=0.

[16] The author reviewed the Military Times *Early Bird* brief from September 23, 2015 to January 29, 2016 and discovered five to twenty-five articles were published in each edition that pertain to how technology alone will deter threats.

school of thought recognizes that human nature drives the nature of warfare and that fog, friction, and chance shape the nature of war. Clausewitz recognized the resistance associated with technology when he stated, "The military machine -- the army and everything related to it -- is basically very simple and therefore seems easy to manage. But we should bear in mind that none of its components is of one piece: each part is composed of individuals, every one of whom retains his potential of friction."[17] Although technology serves as a capability to positively influence the nature of war, it can exponentially increase the level of friction for any given organization if there is an inability for the leader to understand the human dynamics within the organization.

Training and Doctrine (TRADOC) Command's *Army Operating Concept* (AOC) and the Combined Arms Center's *Human Dimension Strategy* provide the institutional foundation for how human nature serves as the basis for which the United States Army will successfully respond to variegated dilemmas that define the future of conflict. TRADOC Pamphlet 525-3-1, *The U.S. Army Operating Concept: Win in a Complex World (AOC)* and *The Army Human Dimension Strategy* acknowledge the need for leaders to develop teams that can thrive in complexity. This is the first attempt to revise operational doctrine since the 1993 version of FM 100-5, *Airland Battle*.[18] The AOC describes, how "future Army forces, as part of joint, inter-organizational, and multinational efforts, operate to accomplish campaign objectives and protect U.S. national

[17] Carl von Clausewitz, *On War*, ed. Michael Howard and Peter Paret, trans. Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 119.

[18] Martin Van Creveld and John Andreas Olsen, eds., *The Evolution of Operational Art: From Napoleon to the Present* (Oxford: Oxford University Press, 2011), 157.

interests."[19] Unlike the technological school of thought, the *AOC* emphasizes, "The human, cultural, and political continuities of armed conflict as war will remain a contest of wills."[20]

The *AOC* highlights four emerging threats likely to challenge the future of US sovereignty. Countries such as China and Russia represent the first and most dangerous threat defined as Competing Powers. Competing Powers expect to modernize their conventional, unconventional and cyber capabilities aimed at advancing their interests while simultaneously marginalizing United States interests abroad. Regional Powers are the second threat. Examples include Iran and North Korea. They use a combination of diplomatic, economic, informational, and nuclear threats to influence and expand regional hegemony. Transnational terrorist threats like the Islamic State of Iraq (ISIS) attempt to capitalize on weak nation-state governance and localized disputes between actors that reside in weak and failing states. Inexpensive electronic systems coupled with local tactics allow transnational terrorists to expand in both time and space. Finally, transnational criminal organizations exploit ineffective and corrupt governments of weak and failing states for financial gain. These groups are most prevalent in Central and South America. They too, use terror tactics such as murder, kidnapping, human trafficking, and black market sales to advance their financial interests and further erode confidence in state governance.[21] The rich interconnectivity of these traditional, unconventional and hybrid strategies, rapid diffusion of information, greater level human interaction, and accessibility to weak, failed, and ungoverned regions suggest that future conflict will become increasingly complex. Each model requires a land force capable of operating in a complex physical and mental domain while balancing nuclear threats, public and political perception, and regionally aligned

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[19] Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept* (Fort Eustis, VA: United States Army Training and Doctrine Command, 2014), 7.

[20] Ibid., 2.

[21] Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept* (Fort Eustis, VA: United States Army Training and Doctrine Command, 2014), 12-14.

training and support roles. It is both necessary and sufficient for leaders to generate innovative and adaptive teams that understand the need for a holistic approach to these interconnected threats.

The human dimension school of thought embraces technology as a capability that allows the organization the ability to gain a position of relative advantage over one or all of the threats described earlier similar to the technological school of thought. The key difference is that the Human Dimension perspective views technology as *a* tool, not *the* tool to assist the team with the ability to win in a complex world. The publication of the United States Army's *Human Dimension Strategy* in April 2015 is the first of its kind and seeks to expand on the *AOC* guidance for how the Army will operate in the future. The *AOC* highlights the need to "develop innovative leaders and optimize human performance."[22] Although the *AOC* recognizes the importance of developing "leaders and cohesive teams that thrive in conditions of uncertainty," it is limited to a broad visionary intent for how it is accomplished. It fails to emphasize the need for leaders to develop teams that can thrive in uncertainty.[23] In response to these risks, The *Army Human Dimension Strategy* argues that "the Army must optimize the human performance of every Soldier and Army Civilian in the Total Force," and the "Total Army must build cohesive teams of trusted professionals who thrive in ambiguity and chaos."[24]

The Human Dimension strategy aims to achieve this vision through three lines of effort: Cognitive Dominance, Realistic Training, and Institutional Agility. First, Cognitive Dominance focuses on improving individual "cognitive, physical, and social abilities to achieve an advantage

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[22] Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept* (Fort Eustis, VA: United States Army Training and Doctrine Command, 2014), 20.

[23] Ibid., 20.

[24] The United States Army Combined Arms Center, *The Army Human Dimension Strategy*, 4.

over a situation or adversary" and reached through "training, education, and experience."[25] Next, Realistic Training proposes to improve teams through various models of instruction. Finally Institutional Agility serves to improve the human dimension through "creating a nimble organization able to innovate rapidly."[26] If the *Human Dimension Strategy* intends to develop "cohesive teams of Army Professionals who adapt and win in the complex world of 2025" then a majority of research should focus on how the human dimension relates to leadership and leading teams in a complex environment.

The Human Dimension school of thought has a short but rich history of military research. The expansive array of literature suggests the need to provide a locus of understanding for this nebulous concept. For the purpose of this monograph, the definition described in the *Human Dimension Strategy* will suffice. The strategy defines the human dimension as "the cognitive, physical, and social components of the Army's trusted professionals and teams."[27] Most human dimension research applies to a researcher's topic of interest or a military environment.[28] In 2004,

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[25] Ibid., 8.

[26] Ibid., 9.

[27] The United States Army Combined Arms Center, *The Army Human Dimension Strategy*, 1.

[28] Steven Chandler, *Human Dimension* (Fort Monroe, VA: Army Capabilities Integration Center, 2010); John W. Nicholson, *Mission Command: The Human Dimension* (Washington DC: Joint Improvised Explosive Device Defeat Organization, 2012); Dennis O'Brien, *The Human Dimension of Network Security* (Carlisle Barracks, PA: US Army War College, 2004); Robert Scurlock, *Human Dimension of Transformation* (Carlisle Barracks, Carlisle, PA: US Army War College, 2004); Alma G. Steinberg and Diane M. Foley, *Leader's Guide for Contingency Operations: The Human Dimension* (Fort Leavenworth, KS: US Army Research Institute for the Behavioral and Social Sciences, 1998); Bruce J. West, Elizabeth K. Bowman and Brian Rivera, *The Human Dimension of Networks* (Aberdeen Proving Ground, MD: Army Research Laboratory, Human Research and Engineering Directorate, 2008); Michelle Ramsden Zbylut et al., *The Human Dimension of Advising: Descriptive Statistics for the Cross-Cultural Activities of Transition Team Members.* (Fort Leavenworth, KS: US Army Research Institute of Behavioral and Social Sciences, 2009).

Scurlock examined how the Human Dimension's application to Army transformation.[29] Also, in 2004, O'Brien, West, Bowman, and Rivera studied linkages between cognitive and social domains "of a network as they relate to human decision-making" through the use of "agent-based modeling to simulate the dynamics of…complex networks."[30] Other research examined how the Human Dimension applies to complex operations such as U.S. Army Transition Team members.[31] Chandler's analysis from 2012 provides a useful framework for the Army *Human Dimension Strategy,* by establishing a cognitive, physical, and social framework for the current strategy.[32] Increased degrees of complexity serve as the primary linkage between technology, the human dimension, the *AOC*, and *Human Dimension Strategy*. Therefore, an examination of complexity theory is useful to determine how it could improve a leader's ability in developing teams to thrive in complex environments. First, an explanation of term complicated and complex is necessary to determine the difference with how this might influence the development of Army teams in their the type of training for which they must prepare.

Complex vs. Complicated: Is there a difference?

LTG(R) Paul Van Riper built an opposing force that thrived in uncertainty and ambiguity during the Millennial Challenge in 2002. While most of the post-exercise analysis has focused on exercise adjudication, little analysis exists on how LTG(R) Van Riper successfully commanded an over-matched Red Team, enabling it to thrive in the complex environment posed by a

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[29] Scurlock, *Human Dimension of Transformation*.

[30] O'Brien, *The Human Dimension of Network Security*; West, Bowman, and Rivera, *The Human Dimension of Networks*, 2.

[31] Zbylut et al., *The Human Dimension of Advising: Descriptive Statistics for the Cross-Cultural Activities of Transition Team Members*; Steinberg and Foley, *Leader's Guide for Contingency Operations: The Human Dimension*.

[32] Chandler, *Human Dimension*.

numerically and technologically superior Blue Team. LTG(R) Van Riper provides a useful clue when he stated his intent was to be "in command and out of control."[33] Van Riper's intended outcomes suggest the goal was to establish a culture that allowed his team to develop creative solutions to complex problems and support the implementation of solutions aligned with the Red Team's mission.

Other military leaders might argue that there was little difference between his particular challenge as the Red Team leader and any other military team dealing with other challenges relating to a military organization. The debate requires a deeper examination of the differences between the terms, complicated and complex for greater understanding. Robert Axelrod defines complexity as a system that "consists of parts which later interact in ways that heavily influence the probabilities of later events."[34] The biggest difference between the two terms is that complexity creates a new and emergent property. While the term 'complicated system' also has many moving parts, it does not produce new or emergent features within the system. Complexity creates an unpredictable outcome whereas complicated systems generate a predictable outcome.

The *Army Operating Concept* defines complexity as "an environment that is not only unknown but unknowable and constantly changing."[35] While the *Human Dimension Strategy* does not explicitly define either term, it does recognize the future uncertainty influenced by weak and failing states where adversaries will challenge US interests that avoid our traditional applications of hard and soft power. Analysis of these seminal documents suggests that a different approach is necessary to optimize the individual performance and develop cohesive teams that

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[33] Gladwell, *Blink: The Power of Thinking without Thinking*, 118.

[34] Robert M. Axelrod and Michael D. Cohen, *Harnessing Complexity: Organizational Implications of a Scientific Frontier* (New York, NY: Basic Books, 2000), 15.

[35] Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept*, iii.

improve and thrive in complex environments.[36] Complex situations require a strategy that requires a holistic approach to organizational development. Reductionism causes a leader to examine a complex problem in an isolated form, creating a trap of replication. Replication encourages leaders to take a dogmatic procedural approach to solving different problems to achieve the same outcome. The inherent danger is that leaders unknowingly drive organizations to solve the wrong problem through this particular approach. In sum, complex systems require a leader to examine the rich, holistic interconnectivity of the environment. Complicated systems are closed and not necessarily influenced by interdependent relationships. They allow leaders to understand the entirety of the system through reducing the system into individual parts and examining each part separately.

Complexity Theory

Complexity theory provides the basis for understanding complex systems and their applicability to the social sciences including military organizations. Complexity theory, as described by Uhl-Bien and Marion "is the study of self-reinforcing interdependent action among adaptive entities and show how such interaction creates creativity, learning, adaptability and change."[37] According to Osinga, "Complexity theory examines emergent order in large, interactive adaptive networks such as neural networks or ecosystems."[38] Complex adaptive systems exhibit non-linear, self-organizing behavior to survive and thrive in this environment. This behavior then generates a level of hierarchical self-organization within the adaptive system.

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[36] The United States Army Combined Arms Center, *The Army Human Dimension Strategy*, 4.

[37] James K. Hazy, Jeffrey Goldstein, and Benyamin B. Lichtenstein, eds., *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, Vol. 1 (Mansfield, MA: ISCE Publishing, 2007), 148.

[38] Osinga, *Science, Strategy and War: The Strategic Theory of John Boyd*, 95.

Osinga argues that complex systems have the unique capability of balancing between order and chaos, "the edge of chaos."[39] Without order, the timely retention and transferability of information between structures along with the ability to reproduce success via positive feedback would not happen. Without chaos, an absence of creativity and adaptability necessary for continued evolution would not occur. Self-organization allows complex adaptive systems to generate a "synergistic feedback loop" that creates a learning organization, leading to a limited amount of hierarchical control and an incredible level of resilience. These stated features reflect a commonality with military structures and exponentially gain in relevance given the necessity to prepare for the same unpredictability described in both the *Army Operating Concept* and *Human Dimension Strategy*.[40]

John Holland, one of the most prominent researchers in the field of complexity, recognizes that the dictionary definition provides little more than a corresponding relationship between the terms *complex* and *complicated*. Nevertheless, there are two areas of complexity that provide differentiation between a complicated and complex system: emergence, and the behavior of complex systems. Holland describes emergence, or emergent properties, as "interactions where the aggregate exhibits properties *not* attained by summation."[41] Goldstein states that emergence "refers to the coming-into being of novel 'higher' level structures patterns, processes, properties, dynamics, and laws, and how this more complex order arises out of the interactions among

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[39] Ibid., 96.

[40] Training and Doctrine Command Pamphlet 525-3-1, *The Army Operating Concept*, 58.

[41] John H. Holland, *Complexity: A Very Short Introduction* (Oxford, United Kingdom: Oxford University Press, 2014), 4.

components (agents) that make up the system itself."[42] Schwandt and Szabla view emergence as "the evolution and recombination of interactions into new actions."[43]

Steven Johnson, the author of the aptly titled book, *Emergence*, defines the concept as, "what happens when an interconnected system of relatively simple elements self-organizes to form more intelligent, more adaptive higher-level behavior."[44] Groups, regardless of type, display emergent properties. Insect colony behavior, city development, neighbor interactions, or corporate and military teams are just a few examples of different structures that exhibit emergent behavior. Recurring shapes and patterns unite each of the phenomena through agents that unknowingly self-organize and create a higher-level order.[45] Military organizations are hierarchical structures that produce emergent properties based on different cultures within each tiered level. The interaction between the leader and the team will likely create emergent behavior that could offer suggestions for how the leader can develop teams to thrive in a complex environment.

Emergent properties within a complicated system display a certain outcome. Regardless of how difficult it might appear, complicated systems are solved through a linear process. US Army technical training standards commonly reflect complicated problems. For example, a new armor lieutenant entering his first stage of Army training, known as the Armor Officer Basic Course (AOBC) will be required to operate the M1A2 System Enhancement Program (SEP) Main Battle Tank (MBT). The operation of an M1A2 tank requires multiple steps and pre-condition checks. The outcome of starting and operating the M1A2 SEP is the same every time: the tank

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[42] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 6.

[43] Holland, *Complexity: A Very Short Introduction*, 5.

[44] Steven Johnson, *Emergence* (New York, NY: Scribner, 2001), 288.

[45] Steven Johnson, *Emergence* (New York, NY: Scribner, 2001), 20-21.

starts. A soldier learning to operate their personal weapon or a pilot learning how to fly a plane experience similarly complicated challenges. The point is that emergent properties of complicated tasks never change. The replication of this action produces the same result each time. If a problem occurs during the process, then an examination of each step occurs separately to isolate and correct the problem. The nature of the complicated task becomes simpler with repetition.

Holland suggests that self-organization, chaotic behavior, fat-tailed behavior (Black Swan), and adaptive interaction describe the basic emergent behaviors of a complex system. Plowman and Duchon define self-organization as the "tendency of systems, especially in times of uncertainty or stress, to shift to a new state because the agents that make up the system interact, learn new things and modify their interconnections."[46] Self-organization is one of the most recognizable phenomena in complexity theory. Lower-level agents interact through positive and negative feedback loops that result in higher-level order without the establishment of centralized control mechanisms. Negative feedback fosters disequilibrium that engenders innovative and new ideas. Positive feedback allows an organization to reinforce successful procedures. Self-organization describes behavior commonly associated with structures that organize into patterns, like bees, ants, a pack of wolves, or schools of fish. Self-organization provides military teams the ability to thrive in chaos if lower-level structures have the autonomy and space to generate innovative responses to higher-level agents. Red-Teams, Operational Design teams, and whiteboard sessions are simple yet compelling examples of military teams in a lower level system that "exchange information, take actions, and continuously adapt to feedback about others' actions."[47] Self-Organization enables a complex adaptive organization to learn, refine, and adaptively apply discoveries to create a better fit to a changing environment.

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[46] Mary Uhl-Bien and Russ Marion, eds., *Complexity Leadership Part I: Conceptual Foundations* (Charlotte, NC: Information Age Publishing, 2008), 134.

[47] Ibid., 134.

Chaotic behavior occurs when small behavioral changes result in significant changes elsewhere in the organization-better known as the butterfly effect. For example, the change of a tank gunner within an armored tank crew, or change of a point man within an infantry squad during a World War II battle could have had either tragic or beneficial outcome for an entire division. A Black Swan, (also known as fat, or long-tailed behavior) describes how unexpected events occur more often in complex systems than predictability associated with normally distributed events, (a *complicated* system).[48] Black Swans are unpredictable; a shock to the system, and hindsight attempts to explain its causality. Examples include the attacks on the World Trade Center, the 2008 economic recession, a catastrophic tornado, or a mass extinction. Finally, agents within complex systems tend to interact adaptively or modify their strategies as they accumulate experience within the system.[49] Adaptive interaction allows the system to create creative solutions to solve complex problems associated with ambiguous emergence. Agents within a complex adaptive system naturally exhibit adaptive behavior. Both positive and negative feedback provide agents the information to learn and adapt in a complex adaptive system. Complex systems differ from complicated systems because of their unpredictable emergent properties.

Military organizations reflect the characteristics of a complex system. Ironically, they are synonymous with hierarchy and control. A single authoritarian leader in command of the structure serves as the most accepted view of military leadership. This ideal optimizes organizational efficiency and is necessary as an organization scales up. A hierarchical structure can enable greater procedural synchronization from higher headquarters and is then able to replicate processes within subordinate groups. Large, conventional military units like armor and

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[48] Nassim Nicholas Taleb, *The Black Swan: The Impact of the Highly Improbable* (New York, NY: Random House, 2007).

[49] Holland, *Complexity: A Very Short Introduction*, 5-6.

infantry brigade combat teams benefit from this process. Military organizations can quickly concentrate available resources to a particular place and time as directed by the hierarchical leader. Outcomes are predictable, as desired by the leader. Traditional military structures can efficiently solve complicated problems with assumed outcomes.

The problem arises when the traditional leader and military organization face unknown or complex situations as described in the *Army Operating Concept*. Bar-Yam posits that "the higher the likelihood that a wrong outcome will occur, the higher the complexity of the mission."[50] For example, conflict in Iraq and Afghanistan presented a litany of complex scenarios because United States (US) Army forces faced multiple dilemmas while transitioning across the spectrum of conflict. Transitions between peace-enforcement, stability, counter-insurgency, and major combat operations all occurred while operating in both urban and rural terrain that included hidden enemy forces, bystanders, civilians, and neutral parties.[51] Military organizations operate in an environment characterized as an open system where complex interactions result in unpredictable emergent outcomes. The hierarchical rigidity of traditional military organizations is premised on the assumption of operations in a closed system where the military leader can maintain constant, positive control without interference from the environment. If unpredictable and unknown threats (complexity) define the future of warfare, then this flawed premise will likely increase the chance of failure for military organizations. The greater degree of complexity faced by military organizations in both present and a future battlefield demands a reexamination of how military organizations are developed and led.

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[50] Yaneer Bar-Yam, *Making Things Work: Solving Complex Problems in a Complex World*, ed. Chitra Ramalingam, Cherry Ogata, and Laurie Burlingame (Cambridge, MA: NECSI, Knowledge Press, 2004), 99.

[51] Ibid., 100.

Emergent properties of warfare provide compelling justification that our current model used to prepare military organizations to succeed in future warfare has a limited shelf life. There is, however, a reluctance to embrace complexity given its emergent properties that emphasize bottom-up learning, self-organization, and the abandonment of centralized control. Complexity leadership theory offers a compromise that bridges the gap between stability associated with the traditional top-down, centralized military structure, and the principles of self-organization, decentralization, and bottom-up refinement associated with complex adaptive systems. Complexity theory is limited in how it relates to military organizations because of its emphasis on lower-level emergent properties and lack of association to the traditional bureaucratic structure. Whereas complexity theory focuses on emergent properties associated with the characteristics of a flat organization, complexity leadership theory establishes a linkage between the traditional hierarchical structure and the innovative and adaptive dynamics of a complex adaptive system.

Complexity Leadership Theory

Until recently, Complex Physical Systems (CPS) and Complex Adaptive Systems (CAS) served as the two primary subfields within the realm of complexity theory. However, recent research recognized the evolution and integration of complexity in all social systems. Complexity leadership theory is a framework that provides adaptive solutions to dilemmas using a networked-based approach. It is defined as a "framework for leadership that enables the learning, creative, and adaptive capacity of complex adaptive systems."[52] Complexity leadership theory suggests that complexity "generally refers to a high degree of systemic interdependence, which, among other things, leads to non-linearity, emergent order, creation and surprising dynamics."[53]

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[52] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 196.

[53] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 4.

Complexity leadership theory also challenges the traditional assumption of leadership with how leaders function in complex environments. Traditional leadership views the leader "as a role rather than as a behavior," and this allows the leader to moderate subordinate behaviors, so organizational outcomes are predictable and hopefully achieved.[54] Complexity leadership is better suited as an emergent behavior due to the "ongoing interactions among individuals and groups in organizations."[55]

Complexity leadership theory recognizes that the leader is no longer the sole proprietor of the organization's purpose, direction, and motivation. If so, then leaders emerge as the structure self-organizes. This does not mean that hierarchical leaders abdicate organizational responsibility. Rather, leader behavior varies with each situation based on how the structure self-organizes. It also differentiates between leaders and leadership. While leadership now serves as a process of emergent interactive dynamics supportive of adaptive results, leaders are seen as the agents that influence the outcomes and dynamics produced by leadership.[56]

The exchange of information and feedback that creates perturbations help characterize a complex environment. Traditional leaders attempt to dictate future outcomes; complex leaders encourage the connections between organizational members to enhance organizational understanding. Traditional leaders attempt to direct change; complex leaders recognize emergent patterns as the environment changes. Traditional leaders attempt to eliminate chaos and unpredictability; complex leaders understand volatility and foster patterns of behavior to generate creative and innovation solutions. Traditional leaders manipulate organizations to achieve outcomes; complex leaders cultivate methods to facilitate emergent order that thrives in chaos

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[54] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 131.

[55] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 131.

[56] Ibid., 188.

and ambiguity.[57] Whereas complexity theory emphasizes the importance of lower-level emergent properties of self-organization, bottom-up refinement, and decentralized control, complexity leadership theory provides a pragmatic bridge between the hierarchical administrative reality of military organizations and the "emergent, informal dynamics" of a complex environment[58] Complexity leadership views the traditional leader as the catalyst that *enables*, rather than *directs*, the bottom-up self-organization and coordinates these actions within the organization from which it occurs.[59] It also realizes the utility of organizational bureaucracy necessary to stabilize positive feedback. Complexity leadership synthesizes, or *entangles*, the interactions between innovation and synchronization.

Hazy, Goldstein, and Lichtenstein propose that effective leadership in complex environments occurs when, "changes observed in one or more agents (i.e., leadership) leads to increased fitness for that system in its environment."[60] Structural capabilities describe the term 'fitness' in this model. This suggests that complex situations require creative and innovative solutions to effectively respond to unpredictable emergent outcomes. Thus, effective leadership can influence this emergent ambiguity through indirect mechanisms (dynamic behavior occurring within a complex adaptive system), and organizational interaction.[61] Complexity leadership theory provides a useful method to determine the characteristics necessary of both the leader to build a team that can thrive in uncertainty, and a team that can maintain the fitness to sustain itself. This metric of sustainability will help identify which behaviors are necessary for both the military leader and their team operating in this paradigm.

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[57] Ibid., 144-145.

[58] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 186.

[59] Ibid., 195.

[60] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 7.

[61] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 195.

Theoretical Framework for Complexity Leadership Theory

Complexity leadership theory can provide the military with a new organizational paradigm necessary for success in the future as described in the *Army Operating Concept* and *Human Dimension Strategy*. An analysis of leadership styles and traits best suited to develop teams to thrive in complexity is necessary to determine if there is a difference in these traits when compared with current military doctrine. This section will use complexity leadership theory to propose a theoretical framework of leader roles and traits necessary to develop teams that can thrive and chaos and disorder. Complexity leadership as described by Uhl-Bien, Marion, and McKelvey suggests a framework that includes three different and distinct leadership roles: the adaptive, administrative, and enabling roles. From these roles the author has derived three leadership traits: intuition, participative leadership, and social competence. The combination of the leadership framework and suggested traits serve as a starting point for military leaders to generate teams to win in a complex world.

The first type of leadership role recognized in complexity leadership theory is administrative leadership. Traditional, bureaucratic, top-down, centralized hierarchies are commonly associated with administrative leadership. The pre-industrial and industrial age grounded this type of leadership model as a societal norm. Uhl-Bien, Marion and McKelvey define administrative leadership as the "managerial leadership that occurs in formal, hierarchical roles and is responsible such things as organizational strategy, resource acquisition, and allocation, policy-making, and general management."[62] This style of leadership generally applies to military organizations given their hierarchical structure. Although traditional leadership infers negative connotations associated with micro-management, this function is essential for the survival of any hierarchical organization including the military. The theory suggests, however,

[62] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 153.

that good administrative leaders recognize the importance of synthesizing traditional and adaptive functions (described below) in a hierarchical organization. The administrative leader is supportive of the creativity and adaptive innovation associated with that of complex adaptive systems and how they align with the organizations' mission and goals. Critical to the success of this approach is that administrative leaders recognize the utility of how activity resultant from a complex adaptive system benefits the overall bureaucratic body.[63]

Administrative leadership views the implementation and management of vision, control, change, and coordination differently than the traditional leader approach. Vision might be the most divisive idea as it moves away from promoting the idea of producing a specific, leader generated outcome to one that has greater focus on the production of innovative experience and expertise. Vision encourages learning, creativity, and adaptability throughout the organization. While the traditional military leader's vision closely resembles a determinate vision that focuses on specific outcomes, a military vision that recognizes the importance of feedback, assessment, and the development of agile and adaptive teams would embrace the perspective of the indeterminate vision. Lower-level interdependent visions (agents dependent or limited by other agents) create useful tension resulting in negotiation and collaboration that supports higher-level emergent organizational growth.

Traditional leaders view control as a way to ensure organizational accountability and mission accomplishment. Administrative leadership views the utility of control in a way that controls the organization "without compromising the flexibility and speed," of the organization.[64] Unpredictable events like "globalization, technology, deregulation, and democratization" have a

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[63] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 153.

[64] Ibid., 157.

tendency to influence the level of control imposed by the organization's leader.[65] Authoritative forms of control present the image that military leaders are competent and capable due to their personal management of the event. Complexity leadership resembles LTG(R) Van Riper's view of leadership as being "in command and out of control."[66] It views control as a process rather than a way to manage the organization. Uhl-Bien and Marion suggest that "tension, interdependency among agent preferences and work productivity, conflicting constraints, [and] simple rules and need" are tools necessary for a leader to manage control with organizational innovation.[67] For example, the non-contiguous geographic placement of companies and platoons in Iraq (post-Surge) and Afghanistan and the ensuing unexpected emergent patterns from their placement allowed military leaders to control organizations without inhibiting their ability to respond to the emergent properties in their areas of operation.

Change is the third administrative function that presents a different approach through the lens of complexity leadership. Traditional leaders drive organizational change through their individual vision statement. Administrative leaders view change as a way to foster the development of procedures that support the emergence of innovative and adaptive outcomes. Instead of implementing change through higher-level policies and directives, administrative leaders encourage change to emerge through non-linear interactive dynamics that support the organization's vision.[68] This idea might seem counter-intuitive within a military organization. If the Army is serious about seeking innovative ways to deal with "regular, hybrid, terrorist, and

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[65] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 157; Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 189.

[66] Gladwell, *Blink: The Power of Thinking without Thinking*, 118.

[67] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 156.

[68] Ibid., 157.

criminal adversaries," then administrative leaders must find a way to support change caused by a movement within the organization.[69]

Coordination is the last administrative function that differs between administrative and traditional leaders. This attribute also emphasizes the ability of a leader to optimize informal, emergent (bottom-up), strategies intended to foster frequent collaboration with multiple agents. Coordination distributed amongst agents within the organization allows for a competitive advantage that produces effective emergent outcomes in response to unpredictable and complex environments. Traditional bureaucratic leaders that aim to control situational understanding prevent the organization from solving complex problems promptly.[70] For example, informal methods of coordination that occurs and are outside of Operational Planning Teams (OPT) and encouraged by the OPT leader normally result in emergent patterns that are much more likely to solve more complex problems of increasing difficulty than if the organization had to wait for guidance from the traditional leader.

Adaptive leadership is the second form of leadership within complexity leadership theory. It is defined as, "an informal leadership process that occurs in intentional interaction of interdependent human agents (individuals or collective) as they work to generate and advance novel solutions in the face of adaptive needs of the organization."[71] Adaptive leadership is the *yin* to its administrative leadership's *yang*. It provides a collective tension and interdependence in

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[69] The United States Army Combined Arms Center, *The Army Human Dimension Strategy*, 3.

[70] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 157-158.

[71] Mary Uhl-Bien and Russ Marion, "Complexity Leadership in Bureaucratic Forms of Organizing: A Meso Model," University of Nebraska-Lincoln, accessed November 15, 2015, http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1037&context=managementfacpub.

support of administrative functions rather than a dualistic style, independent of one another.[72] It provides a way for leaders to encourage new ideas, organizational tension, and innovation necessary for their team to thrive in chaos and ambiguity.

Interdependent tension results in improved processes, alliances, ideas, technologies, and cooperative efforts that would have never occurred through a go-along-to-get-along strategy. Whereas administrative functions strive for stability, adaptive functions aim for innovation and creative tension. The goal of adaptive leadership is the creation of epiphanies or, 'aha' moments through informal discourse between conflicting personalities. Interdependent interaction is the process that turns ideas into solutions. Adaptive leadership is not the product of the person in charge. It serves as a process that allows the organization to thrive in chaos and ambiguity.

Change for the sake of change does equal organizational effectiveness. Thus, significance and impact serve as two necessary conditions for adaptive leadership. Significance acknowledges the possible utility of fresh, innovative ideas while impact refers to the willingness of others to embrace the new idea(s). Sun Tzu's similar theme of *yin* and *yang* provides a useful comparison to adaptive leadership. It requires a mix of both of creativity and expertise. For example, a military expert of attrition warfare will likely have difficulty shifting from their familiarity of attrition warfare to another style of warfare. What previously caused success for this military decision-maker might cause the organization to fail in a different style of armed conflict. Additionally, the bright, young graduate student well versed in the academics of foreign area studies will quickly perish in battle without necessary training and experience. Adaptive leaders depend on both expertise and creativity to foster the emergence of adaptive interdependence and

[72] Sunzi and Roger T. Ames, *Sun-Tzu: The Art of Warfare: The First English Translation Incorporating the Recently Discovered Yin-Ch'üeh-Shan Texts* [Sunzi bing fa.], trans. Roger T. Ames (New York: Ballantine Books, 1993) 52, 77-78.

"generate creative and adaptive knowledge that exhibits sufficient significance and impact to create change."[73] Increased organizational heterogeneity results in an improved ability to generate learning, creative, and adaptable solutions. Heterogeneous, interactive, and interdependent organizations facilitate the creative solutions necessary for organizations to thrive in complexity. Finally, adaptive leadership is not limited to a specific location or position. This can occur at any level of war depending on the where it needs to occur (platoon, planning cell, division commander); however the focus will differ. For example, strategic-level leaders might emphasize the acquisition of resources, emergent planning, or strategic relationship development. Operational-level leaders focus their efforts on emergent problem framing and tailored resource allocation and distribution. Finally, tactical-level leaders will focus their efforts on the innovation of new and more useful tactics, techniques, and procedures and emergent doctrinal procedures.[74]

Enabling leadership is the last and most important function of complexity leadership theory. It serves as the catalyst between the bureaucratic system (administrative) and the complex adaptive system (adaptive) while nurturing the environment that supports the emergence of adaptive leadership within the organization. Enabling leaders promote "the conditions conducive to the complex interactive dynamics of adaptive leadership and managing the administrative-to-adaptive and innovation-to-organization interfaces."[75] The process of *entanglement* fosters the conditions that catalyze adaptive leadership and support the environment for complex adaptive system dynamics. Simply put, entanglement affects the relationship between top-down formal forces (administrative) and the informal, emergent (adaptive) forces within in an organization. The enabling leader bridges the gap between these important, yet contradictory forces.

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[73] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 202.

[74] Field Manual 6-22, *Leader Development*, 1-9.

[75] Uhl-Bien and Marion, *Complexity Leadership in Bureaucratic Forms of Organizing: A Meso Model*, 633.

Enabling leaders generate teams to thrive in complexity by facilitating agent interaction, interdependency, and moderating the appropriate amount of creative tension necessary for the production of optimal organizational solutions. First, interaction allows for the necessary flow and integration of information. Information flow spurs the emergence of sophisticated networks. These networks capture the most up-to-date information that influences the adaptive dynamic. Second, interdependency combines with interaction in a way that realigns information in response to feedback from different agents. This interaction contributes to the emergence of new and more applicable solutions to organizational challenges if embraced by the administrative leaders. Whereas interaction supports the flow of information between agents, interdependency generates the need to refine the information when it conflicts with another agent. This conflict creates an emergent process with a greater chance of solving complex problems. Enabling leaders foster an atmosphere that allows the mediation of emergent conflict by inhibiting individual and administrative tendencies that stifle this type of interactive tension. Lastly, tension is defined as "imperative to act and to elaborate strategy, information, and adaptability."[76] Enabling leaders cultivate divergent viewpoints necessary for productive interaction and creative organizational solutions associated with adaptive leadership. For example, enabling leaders foster tension through separating task from interpersonal conflict, playing devil's advocate, breaking groupthink, contributing to thought-provoking ideas, and increasing organizational heterogeneity as required.[77]

There are two functions associated with an enabling leader's ability to coordinate the entanglement necessary for adaptive and administrative structures to thrive in complexity. Uhl-Bien describes the first function as "managing the administrative-adaptive interface."[78] Enabling

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[76] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 208.

[77] Ibid., 206-209.

[78] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 210.

leadership protects adaptive systems from traditional administrative pressures influencing long-range planning and resource allocation in support of adaptive systems. Planning can either support innovation by providing necessary resources or impair the emergence of bottom-up, adaptive behavior by restricting a flexible and continuous reframing process. Enabling leaders provide resources that allow for the unimpeded flow of information throughout the organization. Resources take the form of money, information, and additional special-skilled team members. Resources either enhance the adaptive process or reinforce emergent ideas produced by the process. Negative feedback can generate friction due to the scarcity of resources. Creative tension can diversify the organizational assignment process. Finally, enabling leaders help to balance the unpredictable emergence of the adaptive process through feedback. The creative nature of the adaptive process requires a continuous assessment of when to realign unconstructive outcomes that move beyond the scope of the organization's mission statement. A successful enabling leader protects the creative, learning and adaptive process "by structuring conditions such as missions, physical conditions, crises, personal conflicts, and external threats in ways that support creative adaptive behaviors."[79]

Uhl-Bien describes the second function as "managing the innovation-to-organization interface."[80] Leaders are often overwhelmed with the management of daily operations leaving little incentive to support the development of new processes or solutions. Organizational systems need a generative force to link people, sufficient resources, and information to stimulate an innovative organizational system. Enabling leaders champion the innovative and applicable solutions that emerge from the adaptive function. They invest energy in what Uhl-Bien defines as

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[79] Ibid., 211-212.

[80] Uhl-Bien and Marion, *Complexity Leadership in Bureaucratic Forms of Organizing: A Meso Model*, 212.; Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 646.

a pro-innovative approach. There is, however, a level of risk associated with enabling leaders. Enabling leaders must ensure adaptive solutions are associated with complex rather than complicated environments. Promoting a discursive, inefficient solution to a complicated problem is just as counterintuitive as a complicated, reductionist solution recommended for an unpredictable threat. Enabling leadership serves a catalyst that encourages interdependent interaction between the administrative and adaptive leadership functions. Enabling leaders provide more than just purpose, direction, and motivation to the organization's subordinate agents.

Individual Traits for Enabling Leaders

Intuition, participative leadership, and social competence are three traits required for leaders to generate teams to thrive and win in a complex world. First, intuition allows the leader ~~t~~o adjust the behavior of the organization by recognizing patterns within chaos and adapting to the unpredictable conditions of warfare. Instead of the military leader self-correcting the behavior of the organization to meet the leader's individual goals, the leader recognizes the importance of maintaining a sustained level of cognitive tension so the organization can operate at the edge of chaos. Positive organizational tension managed by the enabling leader reinforces conditions necessary for the development of fresh ideas and creativity to thrive. Military leaders that discourage organizational tension prevent innovative development essential for survival in complex environments.[81] Intuition assists leaders by determining the correct balance of organizational friction and stability. Intuition permits leaders to distinguish order from the chaotic and apply it to their organization to reorganize the structure resulting in the "emergence of new

[81] Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity* (New York: Columbia University Press, 2009), 190.

behavior and organizational arrangements."[82] In other words, military leaders with a greater degree of intuition are more likely to accept a greater level of organizational inefficiency ensuring a sufficient amount of creativity and innovation necessary for success in complex environments.

Intuition is a subjective trait that varies based on a leader's anecdotal experience and history. This research does not try to negate this fact. Ambiguity associated with complex environments suggests that military leaders must rely on intuitive decision-making. Furthermore, methods to leverage biases associated with intuition are available to improve decisions by leaders operating in time-constrained environments. Intuition supports a leader's ability to "reduce the complexity of a situation, recognize patterns (real or perceived), and make decisions quickly according to past experiences or the logic of those recognized patterns."[83]

Participative leadership serves as an essential trait in the development of an enabling leadership style. Leaders "catalyze emergent dynamics by destabilizing existing interactive dynamics, encouraging innovation, and making sense of change by creating 'pathways of opportunity'" through participative leadership. [84] Enabling leaders "nurture innovative organizations through a "participative rather than a directive leadership style."[85] A participative style suggests that leaders who demonstrate humility combined with personal confidence are best suited to succeed in generating *and* maintaining organizations that thrive in ambiguity and uncertainty. Participative leaders are confidently humble leaders. Confidently humble leaders can

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[82] Andrew Ilachinski, *Land Warfare and Complexity - Part I: Mathematical Background and Technical Sourcebook* (Alexandria, VA: Center for Naval Analyses, 1996), 26; Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, 202.

[83] The United States Army Mission Human Dimension Capabilities Development Task Force, *Cognitive Biases and Decision Making: A Literature Review and Discussion of Implications for the US Army* (Fort Leavenworth, KS: United States Army Mission Command Center of Excellence, 2015), 11, 21-22.

[84] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 24.

[85] Ibid., 24.

determine when to emphasize or inhibit organizational transformation. Participative leaders adjust the level of tension between the need to change or stay the same based on the type of feedback they receive. Similar to the Socratic method of teaching, leaders foster positive dynamics of the group that bridge the gap between the competing requirements of administrative and adaptive functions within the organization. Authoritative leader traits naturally support a complicated process of problem solving. Participative leaders however, must be comfortable with abdicating a certain level of control to the organization to develop creative solutions to complex problems. This paradigmatic shift from tradition leadership to complexity leadership implies that the leader consider adopting characteristics of participative leaders.

The final leader trait suggested for enabling leaders operating in a complex system is social competence. As a subset of emotional awareness (which is a characteristic of emotional intelligence), social competence consists of social awareness and relationship management. Bradberry and Greaves state that social awareness is the "ability to accurately pick-up on emotions in other people and understand what is really going on with them."[86] Bradberry and Greaves describe relationship management as the capacity to use the awareness of one's own emotions and the emotions of members of an organization needed to sustain successful interactions.[87] Leaders support connections within the team because they understand how connections produce emergent outcomes supportive of the organizations' goals. In other words, enabling leaders sustain positive connections within the team. In 2012, Alex Pentland of the Massachusetts Institute of Technology's (MIT) Human Dynamics Laboratory proved through mapping technology that successful teams displayed a much higher level of informal

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[86] Travis Bradberry and Jean Greaves, *Emotional Intelligence 2.0* (San Diego, CA: TalentSmart, 2009), 37.

[87] Ibid., 44.

communication among members than lesser successful teams. He also highlighted how informal leaders facilitated these interactions, much like enabling leaders.[88] Eoyang and Holladay describe this as the *container* or the person who holds the "parts of the system together close enough and long enough that they will interact to create a new pattern."[89] The leader of any organization will influence route, tempo, and outcome of their team's ability to stimulate the self-organizing process.[90] Enabling leadership can influence emergent patterns within the organization through their level of social awareness and relationship management. Social competence supports the military leader's ability to maintain open lines of communication, reduce conflict between agents, cultivate and expand the relationships between agents, listen, observe and capture perspectives of other agents within in the organization. Unlike that of an anthropologist who aims to remain detached from observed phenomena, the military leader aims to influence the organizations emergent patterns through a participative and empathetic style defined by Bradberry and Greaves thesis of social competence.

Non-linear interaction – constant interaction between individual agents in a structure – creates a need for feedback loops in a complex adaptive system. Social competence provides the enabling leader with the awareness of the organizations feedback loops. This awareness allows the leader to balance tension with stability. Socially aware leaders (enabling leadership) understand that the "disequilibrium-learning feedback cycle in (military) organizations at the

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[88] Alex Pentland, "The New Science of Building Great Teams," Harvard Business Review, accessed August 25, 2015, https://hbr.org/2012/04/the-new-science-of-building-great-teams.

[89] Glenda H. Eoyang and Royce J. Holladay, *Adaptive Action: Leveraging Uncertainty in Your Organization* (Stanford, CA: Stanford Business Books, an imprint of Stanford University Press, 2013), 27.

[90] Ibid., 27.

local level creates a kind of perpetual novelty" essential for adaptive systems to thrive in chaos and ambiguity.[91]

Organizational Traits in Complex Environments

An experienced and creative potter molding clay will not have a chance of producing a durable piece of artwork if she uses clay without the right balance of plasticity, strength, and water absorption. The same is true for a leader who possesses the right characteristics but is either unaware of the characteristics the team needs to possess, or the team in incapable of possessing the necessary characteristics to thrive in complexity. This section proposes that three organizational traits-heterogeneity, self-organization, and organizational learning provide the organization with the necessary foundation that will enable a military organization to thrive in complex environments.

Heterogeneity provides the organization with a mix of different perspectives necessary for creative tension. Lack of diversity suggests a preference for short-term harmony and groupthink. A lack of tension inhibits organizational innovation and creativity, a key ingredient in within complexity leadership theory. Homogeneity might work for centralized, top-down organizations operating in complicated (predictable) environments, however, it suggests that organizations will fail to evolve against unpredictable threats and eventually become extinct.[92]

Self-organization, better known as bottom-up adaptation, refers to interactions with other agents (team members) that result in innovative solutions in response to unpredictability or behavior modification during interactions with traditional organizational functions like resource acquisition and allocation, and asset synchronization. Enabling and adaptive leaders encourage

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[91] Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 134.

[92] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 147-148.

the development of a network of agents capable of interacting with each other to solve problems described in both the *Army Operating Concept* and the US Army's *Human Dimension Strategy*. Traditional methods of organization restrict agent input and decision-making to their specific job description. These methods could lead to a loss of useful intelligence in other areas. Top-down organization also creates a culture of top-down problem solving. While it creates an efficient and harmonious process, it limits the reconciliation of disputes to centralized decision-makers and fails to address the rapid unpredictability associated with a complex environment.[93]

Organizational learning is the final trait recommended for military organizations required to operate in a complex world. It serves to develop a culture that embraces positive and negative feedback needed to refine structural outcomes tailored to organizational missions and goals. Learning organizations naturally self-organize. Plowman and Duchon list four features associated with learning organizations. First, the distribution of intelligence supports the team in developing new ideas. Rather than ask who else needs to know, learning organizations share intelligence by asking who else could benefit from the newly discovered information. Second, organizations that foster conversation and enrich connections allow agents to "learn faster and more effectively because they can talk openly about both success and failure in terms that make sense locally."[94] While this seems inefficient from a traditional leader's view, unbridled conversation allows for the greater likelihood of innovative solutions in response to unpredictable challenges. Third, organizations that effectively sustain the paradox of tension are capable of balancing centralizing structures for organizational stability and decentralizing structures necessary for the resolution of adversity. Lastly, learning organizations look for patterns to make sense in environments with

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[93] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 145-153.

[94] Ibid., 123.

constant change. Much like an intuitive leader, organizations aim to make sense of the emergent unpredictability through shared understanding in the form of language and symbols.[95]

Historical Illustrations

Military history often uses a reductionist lens of analysis and fails to consider collective actions between the leader, their organization, and the environment that led to their respective outcomes. For example, Generals Pershing, Patton, Eisenhower, Marshall, MacArthur, Ridgway and Westmoreland, Abrams, Petraeus, McChrystal succeeded based on their particular actions during armed conflict. Throughout history, an analysis of successful military leaders view successful change from a top-down, centralized form of direction and decision-making. If viewed through the lens of complexity leadership theory, military historians might examine how successful leaders entangled innovative adaptive functions with the hierarchical, administrative functions within the military unit. While the authoritative leader narrative remains consistent in military history, a reexamination of the narrative might consider the interdependent and interactive relationships with their respective organization. An examination of these interactions might reveal a different reason as to why military organizations succeeded or failed. Illustrations such as Lieutenant Colonel (LTC) Jason A. Miseli and LTC Chris Conner provide an example of a leader who developed their team to thrive in ambiguity and uncertainty.

Articles published by Lieutenant Colonel Jason Miseli and others in his cavalry squadron reveal how he built his organization to thrive in the ultimate military training scenario-the National Training Center. LTC Miseli's example demonstrates how complexity leadership theory applies to an organization presented with an unforeseen challenge. His squadron refined counterinsurgency tactics over the last ten years of fighting in Iraq and Afghanistan. Their

[95] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness,* 126.

mission suddenly changed, and his squadron had fifteen months to transform from being counterinsurgency experts to experts of a hybrid threat-style of warfare depicted in Army combat training centers called the Decisive Action Training Environment (DATE). The DATE environment challenges Army units with a complex array of adversaries across the spectrum of warfare including conventional, unconventional, guerrilla, partisan, and counterinsurgency and hybrid threats. The US Army purposely develops scenarios at the National Training Center (NTC) with greater complexity than what units will face in real combat.

Lieutenant Colonel Jason Miseli served as the squadron commander for the First Squadron, Seventh Cavalry Regiment, First Cavalry Division from 2012-214. During a fifteen-month training period, he shifted between all three styles of complexity leadership to efficaciously prepare his armored cavalry squadron for success during their brigade's wartime certification assessment at the NTC Rotation 14-04, February of 2014. The first challenge LTC Miseli faced was to figure out how to train the squadron for a traditional cavalry squadron mission of reconnaissance and security in against a near-peer competitor after a decade of preparing for and executing counterinsurgency operations in both Iraq and Afghanistan. LTC Miseli assumed the administrative leader role and provided his squadron organizational goals focused on building expertise in tactical reconnaissance and security tasks. His role encouraged the organization to identify gaps with their current understanding of reconnaissance and security, and where they perceived success against the unpredictable threats of the NTC.

Once the squadron understood his organizational goals, LTC Miseli then transitioned to the adaptive leader role focused on creating an innovative solution to the current problem of recalibrating the entire squadron for an entirely different mission that his squadron would execute at the NTC. First, the squadron developed a shared understanding about the term reconnaissance. Next, they established an educational framework that allowed the organization to develop a collective understanding of reconnaissance and security fundamentals. By using leadership

experience embedded throughout the organization, they devised a methodology that aided the organization to identify enemy courses of action before the enemy could respond. Although these ideas functioned as historical fundamentals of reconnaissance, they provided the organization with an innovative and proven methodology that augmented their lack of experience against this different type of threat. Additionally, the squadron's non-commissioned officer leadership provided insight regarding the need for task repetition as levels of ambiguity in their training increased.

LTC Miseli then focused the organization on developing a theoretical approach to reconnaissance later validated at the NTC. The squadron collectively concluded that reconnaissance and security operations differ for the platoon, troop, and squadron level. For example, platoons train "tactical tasks, movement techniques, and formations," Troops viewed reconnaissance as a mission while the squadron sought to provide an effect of greater clarity for their higher headquarters (administrative function). Finally, the squadron developed a solution of called 'reconnaissance pull'. The squadron deploys ahead of the threat's reconnaissance and develops a clear picture of the battlefield for their higher headquarters using the platoon, troop, and squadron framework described above. For example, platoons achieved reconnaissance pull through the ability to acquire visual contact with the enemy without compromising their position. Visual contact provides the brigade leadership the ability to orient, decide, and act with greater accuracy and efficiency. The enemy expected LTC Miseli's squadron to employ a reconnaissance process that used "terrain based decision points to retain and generate options," however they developed a more effective solution "using time to set the tempo of operations, disrupting (the

threat's) use of terrain"[96] This resulted in a loss of options for both the threat reconnaissance and their follow-on forces.

LTC Miseli's team also developed a methodology that fostered a culture of rapid decision-making and doctrinal expertise focused on Army doctrine and leader development at the platoon, troop, and squadron level. They recognized the best way to prepare for a complex and unpredictable environment is to "train at the threshold of failure."[97] LTC Miseli introduced creative tension in the squadron's training plan by incrementally increasing the complexity of reconnaissance tasks to the point of failure without actually failing. Induced tension encouraged each team to develop innovative or adaptive solutions for each reconnaissance task they performed. The platoon, troop, or squadron will experience the greatest amount of growth while developing sound judgment and experience through induced tension. Operating at the threshold of failure requires a continuous assessment to ensure training did not become stagnant (boring) or chaotic (unrealistic, total failure). The squadron leadership continued to assess the type and level of training to ensure the platoon, troop, and squadron optimized their level of understanding of reconnaissance and security operations regardless of the condition under which they performed. The difference between a traditional leadership approach and LTC Miseli's leadership is that Miseli supported the development of a plan based on input from the entire squadron instead of dictating the terms by which his squadron would perform during their evaluation at the NTC. He saw the importance of executing the training plan under conditions that the organization would not only adapt but also thrive by training at the threshold of failure.

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[96] Jay Miseli, Gregory McLean, and Dirk Van Ingen, "How Garryowen and the Standard Scout Platoon Equal Effective Recon," *The Cavalry and Armor Journal* 5, no. 4 (October-December, 2014), 18.

[97] Ibid., 18-19.

Education played an important role in LTC Miseli's ability to develop the squadron to operate at the threshold of failure. First, the squadron piloted a Leader Development Program that shaped their understanding of reconnaissance and security (R&S) operations. The squadron examined how to train at the threshold of failure by reading articles about leadership, Malcolm Gladwell's book *Blink*, and then synthesized the literature with doctrinal principles of R&S. This developed a conceptual framework for intuitive problem solving as it pertains to reconnaissance and security tasks. This also helped create a culture of learning while promoting the spirit of self-organization. This culture led to an efficient flow of communication and decentralized decision-making based on expertise and education during the execution of their reconnaissance missions at the NTC. Next, platoon, troop, squadron leaders, and key staff attended military schools such as the Army Reconnaissance Course and Cavalry Leader Course. This led to a wealth of shared doctrinal understanding throughout the organization. This also created a natural tendency for leaders to self-organize without a need for centralized, top-down direction because all leaders possessed a shared understanding of the squadron's goals. Finally, the squadron successfully conducted field-training exercises necessary for the validation of their theoretical approach to conducting R&S operations in a DATE environment. LTC Miseli's approach enabled the transition from a decade-long focus on counterinsurgency operations to successfully operating at the edge of chaos against a hybrid threat in the most challenging land-based training environment in the entire world.[98]

Throughout the squadron's fifteen-month training program, LTC Miseli exemplified adaptive and enabling leader characteristics of complexity leadership theory. However, the most impressive example is how he successfully integrated the enabling leadership function. First, he developed a training methodology that created a cavalry squadron capable of effectively

[98] Jay Miseli, Gregory McLean, and Dirk Van Ingen, "How Garryowen and the Standard Scout Platoon Equal Effective Recon," *The Cavalry and Armor Journal,* 18-20.

executing R&S operations in the United States Army's most challenging training environment. Second, he successfully integrated his theory of R&S into the higher headquarters plan at the NTC. For example, he *entangled* the idea of reconnaissance pull into the brigade's maneuver plan. The entire brigade reaped the benefits of the squadron's ability to rapidly identify enemy patterns in a complex training environment. Additionally, when subordinate squadron elements encountered unexpected enemy threats, they quickly analyzed the threat and then self-organized to defeat the threat without waiting for higher headquarters guidance. For example, when faced with the threat of hidden enemy anti-armor systems, they integrated dismounted infantry assets to protect flanks ahead of the main effort. LTC Miseli clearly developed his squadron to thrive at the National Training Center. As an administrative leader, he provided his squadron with the necessary organizational goals while fostering a culture of innovation and adaptability during their theoretical development of R&S operations. As an adaptive leader, he encouraged and supported the idea of training at the threshold of failure. As an enabling leader, he successfully integrated his squadron's innovative approach to R&S with his brigade. This approach eventually contributed to the brigade's successful rotation at the NTC. His approach to squadron command defines the essence of complexity leadership theory in action within a military organization.

Unconventional Forces use of Complexity Leadership Theory

While LTC Miseli's approach to developing his organization to thrive in complexity might seem to be the exception in a conventional combat unit, US Army Special Forces serve as the norm and provide a tangible example of this approach. They also provide decision-makers a feasible option for shaping the future organizational construct of the United States Army. If the US Army must tailor its future self to win in a complex world, then one needs to look no further than how Special Forces have operated in the past and present.

How does the general-purpose Army apply the principles that the special forces community used for decades become integrated on a much greater scale with a much lower

assessment and vetting process? The answer lies in scalability. General-purpose Army forces will never replicate US Army Special Forces. However, they are capable of applying similar training and educational theories that allow leaders a greater chance to prepare their organizations to win in a complex environment. Improving leader traits recommended earlier in this monograph is the first step. Educating leaders to emphasize a participative leadership style instead of an authoritative style encourages a suitable atmosphere for solution development. Next, the Special Forces training and education process develops the intuition of each team member early on while reinforcing the development of experience throughout their career. For example, most Special Forces personnel spend roughly eighteen months to two years in different schools that prepare them for duties and responsibilities in their future operational team. While general-purpose forces will never replicate the same amount of training and schooling, it does suggest the importance of leaders who recognize how education, in the form of Army schools, fosters aptitude to learn and self-organize in response to unforeseen challenges. Examples include officer and non-commissioned officer education school, air assault school, Pathfinder, Sapper, Ranger school, or other lesser-known schools like the Red Team course at Fort Leavenworth, Kansas. If the goal of the US Army is to win in a complex world, then it makes sense for general purpose forces to integrate time-tested and proven concepts that Special Forces have used over the last sixty years to thrive in complexity. The actions of LTC Chris Connor and Second Battalion, Fifth Special Forces Group during the 2003 Iraq invasion reinforce this point. This historical illustration shows how Connor and his junior leaders exemplify the characteristics of an enabling, administrative, and adaptive leadership functions within complexity leadership theory.

The United States military considered the Karbala Gap in southern Iraq as Saddam Hussein's red line for the employment of chemical weapons during the US invasion of Iraq in

2003.[99] The US Army V Corps needed Lieutenant Colonel Chris Conner, commander of the Second Battalion, Fifth Special Forces Group to confirm whether this was true. On March 20, 2003, Operational Detachment Alpha (ODA) 551, led by CPT Dan Runyon, began a long-range reconnaissance mission to provide specific intelligence about the Karbala Gap including data on "weather, wind, temperature, and road quality to all different types of forces the team could identify."[100] The mission was plagued with friction. Prior to the start of their mission, a retired general officer who served as a military analyst for CNN announced to the world that the U.S. military would have to infiltrate a special forces team near the Karbala Gap to provide essential information for follow-on ground forces. During their mission they faced the moral dilemma of compromising their position in effort to rescue an Apache helicopter shot down on the other side of Karbala. Other examples include coordinating attack helicopters, continued evasion of detection from Iraqi forces, fratricide, unplanned support to conventional forces, exfiltration, and passage of friendly lines.[101] While Connor's ODA 551 was faced with adapting to the complexities of operating deep in enemy territory, other teams also developed innovative solutions problems never faced before. For example, ODA 544, successfully negotiated with a local cleric that led to the cessation of the majority of the resistance in An Najaf. Connor's third ODA (563) located in Diwaniya, had to negotiate with local sheiks, employ air power, integrate US Marine reconnaissance forces, and deceptively integrate psychological operations. This diverse array of forces then thwarted an attempt by Baathists to foment an insurgency throughout the city. ODA 563 quickly learned about the threat's changing tactics and re-organized their

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[99] Dwight Jon Zimmerman and John Gresham, *Beyond Hell and Back: How America's Special Operations Forces Became the World's Greatest Fighting Unit* (New York: St. Martin's Press, 2007), 207.

[100] Linda Robinson, *Masters of Chaos: The Secret History of the Special Forces* (New York: Public Affairs, 2004), 250.

[101] Zimmerman and Gresham, *Beyond Hell and Back: How America's Special Operations Forces Became the World's Greatest Fighting Unit*, 210-212.

priorities to support a Sheikh within the city. However, the ODA's true test came when conventional US military forces arrested a prominent Sheikh, who worked with ODA 563, for accidentally killing a local during a riot. The Sheikh could no longer serve in a public position in Diwaniya regardless of his past or future success. The team eventually saved the Sheikh from certain death by allowing his safe return from the neighboring city of Hamza from which he came under the condition that he never return. ODA 563 adapted to Diwaniya's emergent properties by focusing their efforts on self-governance and allowing the residents to choose an interim mayor appropriate for Diwaniya's citizens. Whether ODA 563 cleared urban areas of looters, served as US ambassadors to the local civilians, established innovative methods to provide electricity throughout the city, developed local security forces, and conducted direct action raids to capture suspected insurgents, they provide a strong example of the adaptive leadership that successfully thrived in chaos and ambiguity. These examples highlight how LTC Chris Connor developed agile and adaptive leaders capable of thriving in chaos and ambiguity during the invasion of Operation Iraqi Freedom.

The mission conditions created an ample amount of fog and friction that required LTC Connor to apply principles of complexity leadership from an administrative and enabling perspective. First LTC Connor had to figure out how to deal with a general-purpose higher headquarters that he never worked with before in US Army V Corps Headquarters. Conventional force leaders typically operate their organization from the traditional, top-down driven model in order to ensure efficiency and control throughout the organization. While Special Forces organizations aim for the same level of efficiency they embrace a decentralized, bottom-up model of leadership based on their high level of military education, training and mutual trust.

LTC Connor approached V Corps through the lens of an enabling leader. He successfully entangled the hierarchical and restrictive approach of V Corps with the decentralized nature of his ODAs. He supported the agile and adaptive approach of his ODA's given the decentralized nature

of the missions. For example, Connor worked with many of the V Corps planners to ensure that ODA 551 continued to collect strategically important intelligence on Iraqi military operations in the Karbala Gap region. This prevented the ODA from being compromised during their mission. Additionally, this led to the V Corps successfully maneuvering through the largest geographic chokepoint (Karbala Gap) in the entire invasion, due to the information provided by ODA 551.[102]

While LTC Connor spent most of his time serving as an enabling leader between V Corps and his ODA, he also demonstrated the traits of an administrative leader when working with his subordinate leaders in his battalion. Connor knew how intense the planning process could be for an ODA. He possessed an in-depth understanding of each one of his subordinate leaders. As an administrative leader, he focused his efforts on building multiple ODAs that could work together in difficult conditions over extended periods of time. He also gave his ODAs the necessary level of freedom to conduct a thorough analysis of their respective missions. During back briefs, Connor provided a combination of comments, suggestions, and considerations for branch plans. For example, Connor led a discussion with ODA 551 regarding decisions at key terrain, mission abort criteria involving civilians, military units, and insurgent forces. They discussed recovery plans involving V Corps and helicopter landing zones.[103] Connor's participative approach allowed his subordinate units to refine their plans with additional detail that led to refinements necessary for a successful covert infiltration that was never comprised. Previous experience in places such as Afghanistan and Somalia helped Conner and his team helped refine how they would plan to evade, and, if necessary, fight their way back to friendly lines.[104] The success of

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[102] Zimmerman and Gresham, *Beyond Hell and Back: How America's Special Operations Forces Became the World's Greatest Fighting Unit*, 233-236.

[103] Robinson, *Masters of Chaos: The Secret History of the Special Forces*, 247; Zimmerman and Gresham, *Beyond Hell and Back: How America's Special Operations Forces Became the World's Greatest Fighting Unit*, 223-224.

[104] Robinson, *Masters of Chaos: The Secret History of the Special Forces*, 247.

Second Battalion, Fifth Special Forces Group could not have happened without LTC Chris Connor's ability to create an agile and adaptive team that successfully thrived in the chaos and ambiguity they experienced during the invasion of Iraq in 2003.

The organization, leadership, and development of Special Forces teams embody the kind of military organization that thrives in a complex environment. LTC Miseli demonstrated the usefulness of a special forces-type approach to training and education and should garner consideration towards improving readiness of all general-purpose forces. Although Army units still need to maintain proficiency of complicated tasks such as the deployment of forces, tactical movement of forces through a theater of operations, or mission essential task training. However, leaders must not forget adaptive leader functions that incorporate methods and techniques, similar to how the Special Forces train and educate, and develop the natural ability to transition from conventional to unconventional operations against traditional, hybrid, and insurgent threats. Organizations limited by traditional leaders reluctant to integrate enabling leadership functions will likely struggle to thrive, let alone survive in a complex world.

Lieutenant Colonels Jay Miseli and Chris Conner provide two examples of how complexity leadership naturally fits within the military environment. Conversely, history provides innumerable examples of leaders that failed to develop organizational systems capable of learning, anticipating and adapting to changing threats. One needs to look no further than Cohen and Gooch's book, *Military Misfortunes: The Anatomy of Failure in War*. World War I offers a compelling example of leaders who failed to anticipate or adapt to the increasing degree of complexity associated with the contemporary battlefield. For example, British Field Marshall Douglas Haig's military strategy that led to over half a million casualties at Somme in 1916 and Passchendaele in 1917 was the byproduct of a "narrowly educated, unimaginative, rigid, and remote" leader that thrived in a military organization that rewarded this kind of authoritative

style.[105] Furthermore, Haig developed an organizational culture that rewarded submissive obedience and unconditional loyalty as demonstrated by a personalized promotion system. The slightest hint of tension or criticism from subordinates led to immediate relief or removal. Strategic and tactical battlefield success mattered less than blind obedience. Haig developed an organization to thrive in unquestioned loyalty and submission. The complexity of modern warfare severely challenges the military system that Haig created. Juxtapose this example with General Matthew Ridgway's approach during the Korean War and one can recognize the importance of complexity leadership functions in someone who provided a clear goal, rewarded competent junior leaders during combat, who listened, and adopted the recommendations and solutions of both his staff and subordinate commanders.

Gooch and Cohen shed light on how the lack of any one of the three components of complexity leadership (administrative, adaptive, and enabling) can lead to critical or even catastrophic failure. For example, the casual factors of the Japanese attack on Pearl Harbor are commonly linked to surprise, yet further analysis reveals that a lack of interaction and enforcement between the Army and Navy leaders led to a "state of joint oblivion."[106] The lack of coordination suggests a failure of administrative leaders providing the necessary vision for the organization while an absence of enabling leadership led to a loss of coordination and integration of resources between senior commanders and subordinates who execute their plans. Unlike the current and future threats described in the *Army Operating Concept*, the examples provided here consist primarily of threats posed by other nation-states who emphasized a complicated approach to warfare. Future threats to the United States and their allies are unlikely to be as predictable.

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[105] Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War*, 1st ed. (New York, NY: Collier Macmillan, 1990), 12.

[106] Ibid., 56.

Army Leader Doctrine

Two manuals comprise current US Army doctrine on leadership: Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership* and Field Manual (FM) 6-22, *Leader Development*. The current purpose and definition of leadership does not consider the application of complexity (unpredictable emergence). ADRP 6-22, *Army Leadership* defines leadership as, "the process of influencing people by providing purpose, direction, and motivation to accomplish the mission and improve the organization."[107] This definition essentially states that a good leader will provide everything the organization needs to be successful. Organizations required to solve complicated and known problems *will* benefit from this description. Most tactical military solutions require a predictable response. For example, a US Army infantry brigade assigns subordinate infantry battalions a proscribed list of Mission Essential Tasks (MET). The infantry brigade must achieve a particular standard under a specific condition to achieve a deployable status. A tank company must certify that all tanks are capable of accomplishing their basic tank gunnery tasks. Every tank crewman must understand the task they need to accomplish, the specific conditions for gunnery, and the minimum standard for how many targets they must hit. However, this complicated task list does not guarantee success in complex and unpredictable environments as described in the *Army Operating Concept (AOC)*. These tasks serve as a starting point, a minimum for what teams must accomplish to fight and win our nations wars. Complexity leadership theory provides a recommended framework for military leaders to manage unpredictable emergence associated with a complex world.

The current US Army description of leadership suggests an inability to move beyond a focus on the development of individual leadership driven by formality, centralization, stability,

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[107] United States, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership*, Change 1 ed. (Fort Leavenworth, KS: The United States Army, 2012), 1-2.

and avoidance of uncertainty. While this is critically important in the accomplishment of complicated, tactical problems, i.e. the defeat of a Soviet-style doctrine, it fails to address how organizations solve complex problems such as enemies that avoid our strength, geographically blurred lines, amorphous non-states actors, adaptive technological advances, and constricting military budgets.[108]

Although this monograph points out the definitional differences between the traditional bureaucratic leadership in ADP 6-22, *Army Leadership* and complexity leadership theory, the doctrinal description of leadership does have similar characteristics that apply to complexity leadership theory framework. First, FM 6-22, *Leader Development* provides a comparison of Army Leadership Requirements to the principles of Mission Command. The Leadership Requirements Model lists attributes and competencies and applicable to leaders at every level. *Leader Development* defines attributes as "characteristics internal to the leader" and characteristics as "groups of related actions that the Army expects leaders to do—lead, develop and achieve."[109] Leader attributes consist of character, presence, and intellect while leader competencies include leading, developing, and achieving. Within this model lie some characteristics applicable to complexity leadership theory. These include empathy, the ability to foster teamwork, supports a learning environment, innovation, possesses mental agility, judgment and interpersonal tact, effective communication, builds trust within the organization, and collective leadership. There is, however, an overwhelming focus on a *directive* rather than an *enabling* style of leadership. For example, *Army Leadership* provides nine different methods of influence. Only one, participation, serves as a useful method to generate adaptive outcomes

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[108] David Perkins, "'Win in a Complex World'-But How?" *Army AL&T* January-March (2015), 106, 108.

[109] United States, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership*, 5-6.

within the organization. Whereas enabling leadership embraces creative tension to develop solutions to complex problems, *Army Leadership* considers resistance as something a leader needs to diagnose and eliminate rather than encourage when there is a need to engender a creative solution. Whereas *Army Leadership* states that the leader drives purpose, direction and motivation of the team, complexity leadership theory suggests that the enabling leader facilitates the entanglement of these three concepts within an organization. The nature of complexity might generate emergent properties that cause the organization to reframe their purpose, direction, or motivation. Therefore, solutions will likely drive the concepts developed by an adaptive team rather than a senior commander.[110]

Army Leadership emphasizes the leader as the primary component to achieve mission accomplishment. A framework grounded in complexity leadership rather than traditional leadership suggests a different approach and examines how leaders develop teams to achieve mission accomplishment in a complex, unpredictable environment. An analysis of Army leadership doctrine recognizes characteristics associated with the traits recommended by the author (participative, intuitive, and socially aware). The current doctrine, however, overwhelmingly focuses on a traditional leadership model that emphasizes the leader as the focal point of mission accomplishment. While this might provide a method for leaders to develop teams to solve predictable and complicated problems, it does not allow the leader to prepare their respective teams to deal with ambiguity and chaos associated with complex environments where the entire organization must work as a collective group. This also suggests that the traditional model of leadership could cause the leader to become the single point of failure in a complex environment.

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[110] United States, Department of the Army, Army Doctrine Reference Publication (ADRP) 6-22, *Army Leadership*, 6-2 – 6-4.

Conclusion

If the US Army considers complexity leadership theory as a possible leadership framework, then a cultural shift in the education of leadership roles and functions is necessary. For example, consider expanding the US Army's doctrinal definition on leadership by including the description of a leader who develops the organization through a process of enabling adaptive functions that generate innovative and creative solutions to complex problems within an administrative yet hierarchical organization. Instead of the leader driving group outcomes, they foster self-organized solution development and aid the integration of these solutions in the organization through the entanglement of administrative and adaptive leadership functions. Instead of leaders directing the vision, a leader promotes a localized vision that supports the organization's mission through the development of a heterogeneous, self-organized, and adaptive team. Instead of leaders personally controlling organizational feedback, they *orchestrate* dynamic interaction, productive divergence, creative tension, and informal problem solving. Instead of leaders forcing a pre-existing plan to change the organization, leaders manage (necessary) change through a non-linear emergent process of adaptive systems supportive of team goals. Finally, leaders could achieve synchronization through the balance of informal and adaptive functions that spur innovation aligned with the organization's strategic mission rather than centralized resource and synchronization process. The enabling leadership function cultivates an atmosphere that empowers a team to thrive in chaos and ambiguity (Win in a Complex World). Finally, the introduction of complexity leadership theory in the Army's doctrinal construct offers an expanded description of leadership in *Army Leadership,* and *The Army Operating Concept* and the *Human Dimension Strategy* regarding the increasingly complex nature of warfare.

Words matter. Understanding the difference between the terms complicated and complex make certain leaders do not conflate their meaning. A misunderstanding could prove disastrous depending on the situation. Leaders must understand when to prepare organizations for

predictable (complicated) mission and when they must innovate or adapt. Predictable missions require a distinct level of resourcing, synchronization, and efficient organizational integration. However, leaders must also recognize the unpredictability of warfare and establish conditions that allow their organizations to thrive in this unpredictability. Creating organizational conditions such as a diverse force structure encourage creative tension necessary for the production of innovative and adaptive ideas. Leaders that create conditions of organizational interdependency optimize the interactions necessary for the adaptive leadership function to occur. In other words, subordinate organizations that work together achieve better results when dealing with complex, inherently unpredictable, problems.

Business strategist and scholar, Henry Mintzberg, foresaw the benefit of how discursive practices support strategic thinking and planning. He described strategy development as walking "on two feet, one deliberate, the other emergent."[111] Similar to Mintzberg's suggestion that strategic thinking is a "messy process of informal learning that must be necessarily carried out by the people at various levels who are deeply involved in the situation," enabling leadership facilitates this messy process and then shares innovative ideas with their higher headquarters.[112] Administrative leaders develop a deliberate strategy while embracing the occurrence of emergent strategy led by the adaptive leadership function. Enabling leaders balance their ability to *entangle* administrative and adaptive functions. Whether formulating a long-range strategic vision for initial entry training or developing innovative options for a Middle East crisis, Army leaders must recognize when to provide their higher headquarters with solutions that answer either a difficult but known complicated problem or an unpredictable, complex problem.

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[111] Lawrence Freedman, *Strategy: A History* (New York: Oxford University Press, 2013), 555.

[112] Henry Mintzberg, "The Fall and Rise of Strategic Planning," Harvard Business Review, accessed November 30, 2015, https://hbr.org/1994/01/the-fall-and-rise-of-strategic-planning.

Further research of complexity leadership theory is both necessary and sufficient to determine the long-term utility of this theory's relevance to military leadership. Additionally, a comparison of complexity leadership theory to the US Army's theory of Mission Command could provide a synthesis of how these principles overlap or differ. Little, if any, analysis of complexity leadership theory has applied to military organizations given its nascent history. The current analysis of complexity leadership theory has appealed primarily to business sector leadership.[113] An expected level of resistance towards complexity leadership theory will emerge given the perceived differences between it and the Army's traditional expectation of leader characteristics. That is why emphasis should be on how principles of complexity leadership theory expand upon, rather than replace, the US Army's current definition and traditional expectation of leadership.

An analysis of complexity leadership theory offers a new and exciting approach to identify and develop characteristics of leaders *and* teams sufficient to thrive in a complex environment. The analysis generated from this theory is not designed to reshape or redefine the role of Army leaders or their relationship to the organization that they lead. However, it does suggest the need to consider how the Army selects, educates, and trains leaders to lead our nations' sons and daughters in the most demanding, chaotic, and complex future conditions that a human will face. We owe it to our nation to consider how complexity leadership theory can assist with the how leaders develop their team for success in any environment.

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[113] Hazy, Goldstein, and Lichtenstein, *Complex Systems Leadership Theory: New Perspectives from Complexity Science on Social and Organizational Effectiveness*, 475; Uhl-Bien and Marion, *Complexity Leadership Part I: Conceptual Foundations*, 422; Johnson, *Emergence*, 288; Bar-Yam, *Making Things Work: Solving Complex Problems in a Complex World*, 306; Eoyang and Holladay, *Adaptive Action: Leveraging Uncertainty in Your Organization*, 253; Uhl-Bien and Marion, *Complexity Leadership in Bureaucratic Forms of Organizing: A Meso Model*, 21; George S. Day and Paul J. H. Schoemaker, "Scanning the Periphery," *Harvard Business Review* (2005), 1.; Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*, 265; Bradberry and Greaves, *Emotional Intelligence 2.0*, 255; Ori Brafman and Rod A. Beckstrom, *The Starfish and the Spider: The Unstoppable Power of Leaderless Organizations* (New York: Portfolio, 2006), 232; John Beshears and Francesca Gino, "Leaders as Decision Architects," *Harvard Business Review* 93, no. 5 (2015), 52.

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